

CLAIMS

1. An automatic steering control apparatus which is carried in a ship having a positioning device for measuring a position of the ship, and outputs a command rudder angle based on a deviation of a heading of the ship from a reference course, comprising:
 - an input device for inputting a desired turning center position;
 - a memory for storing the turning center position input by the input device; and
- 10 a rudder angle output device for outputting a command rudder angle so that a track of the ship draws an arc around a turning center stored in the memory with a turning radius, the turning radius being a distance from the position of the ship measured by the ship's positioning device to the turning center.
- 15 2. An autopilot which is carried in a ship having a positioning device for measuring a position of the ship, and outputs a command rudder angle based on a deviation of a heading of the ship from a reference course, comprising:
 - an input device for inputting a desired turning center position;
 - 20 a memory for storing the turning center position input by the input device; and
 - a rudder angle adjuster for adjusting a rudder angle so that a track of the ship draws an arc around a turning center stored in the memory with a turning radius, the turning radius being a distance from the position of the ship measured by the ship's positioning device to the turning center.
 - 25 3. An automatic steering control apparatus which is carried in a ship having a positioning device for measuring a position of the ship, and outputs a command rudder angle based on a deviation of a heading of the ship from a reference course, comprising:

- an input device for inputting a desired turning radius and a desired turning center position;
- a memory for storing the turning radius and the turning center position input by the input device; and
- 5 a rudder angle output device for outputting a command rudder angle so that a distance from the position of the ship measured by the ship's positioning device to a turning center stored in the memory, approaches the turning radius stored in the memory,
- wherein the rudder angle output device outputs a command rudder
- 10 angle so as to adjust a rudder angle so that a track of the ship draws an arc around the turning center with the turning radius from the time when the distance from the position of the ship to the turning center becomes substantially equal to the turning radius.
- 15 4. An autopilot which is carried in a ship having a positioning device for measuring a position of the ship, and outputs a command rudder angle based on a deviation of a heading of the ship from a reference course, comprising:
- an input device for inputting a desired turning radius and a desired turning center position;
- 20 a memory for storing the turning radius and the turning center position input by the input device; and
- a rudder angle adjuster for adjusting a rudder angle so that a distance from the position of the ship measured by the ship's positioning device to a turning center stored in the memory, approaches the turning
- 25 radius stored in the memory,
- wherein the rudder angle adjuster adjusts a rudder angle so that a track of the ship draws an arc around the turning center with the turning radius from the time when the distance from the position of the ship to the turning center becomes substantially equal to the turning radius.

5. The autopilot according to claim 2, wherein the input device can input a desired turning direction, the memory stores the turning direction input by the input device, and the rudder angle adjuster adjust a rudder angle so that the ship turns in the turning direction stored in the memory.

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6. The autopilot [*The automatic steering control apparatus*] according to claim 3, comprising an interrupt controller for independently changing the turning direction, the turning radius and the turning center position stored in the memory.

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7. An autopilot which is carried in a ship having a positioning device for measuring a position of the ship, and outputs a command rudder angle based on a deviation of a heading of the ship from a reference course, comprising:

15 an input device for inputting a desired turning direction, a desired turning radius, and a desired turning center position;

a memory for storing the turning direction, the turning radius and the turning center position input by the input device; and

20 a rudder angle adjuster for obtaining a straight line connecting the position of the ship measured by the ship's positioning device and a turning center stored in the memory for storing the turning center position, obtaining an intersection of the straight line and a turning circle drawn around the turning center stored in the memory with the turning radius stored in the memory, obtaining a tangent to the turning circle at the intersection, calculating a distance difference between the position of the ship and the 25 intersection, and adjusting a rudder angle so that a course direction of the ship approaches the turning direction of the tangent stored in the memory.